

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



20 JUN 2005



(43) International Publication Date
8 July 2004 (08.07.2004)

PCT

(10) International Publication Number
WO 2004/056248 A1

- (51) International Patent Classification?: **A47K 3/02**, 3/022, 3/12, A61H 33/00
- (21) International Application Number: **PCT/NZ2003/000282**
- (22) International Filing Date: **22 December 2003 (22.12.2003)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data: **523321** **20 December 2002 (20.12.2002)** **NZ**
- (71) Applicant (for all designated States except US): **KOHLER NZ LIMITED [NZ/NZ]; 133 Diana Drive, Glenfield, Auckland (NZ).**
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **HATRICK-SMITH, John [NZ/NZ]; 133 Diana Drive, Glenfield, Auckland (NZ). CRICHTON, David [NZ/NZ]; 133 Diana Drive, Glenfield, Auckland (NZ).**
- (74) Agents: **WEST-WALKER, Gregory, J. et al.; A J Park, 6th Floor Huddart Parker Building, Post Office Square, PO Box 949, 6015 Wellington (NZ).**
- (81) Designated States (national): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**
- (84) Designated States (regional): **ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),**

[Continued on next page]

(54) Title: A BATH



(57) Abstract: A bath includes a water outlet or outlets (5) arranged to in use direct a flow of water from behind onto the upper body of a bather or bathers sitting in the bath and leaning back against the wall (1) of the bath. The upper body water outlet(s) may comprise two spaced water outlets one positioned to direct a water flow onto the left-side upper body of a bather and the other positioned to direct a water flow at the same temperature onto the right-side upper body of the bather.

WO 2004/056248 A1

BEST AVAILABLE COPY



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*

A BATH

FIELD OF INVENTION

5 The invention comprises an improved form of bath.

BACKGROUND OF THE INVENTION

10 A standard bath is filled with generally warm water, from taps or a mixer and spout, and is used for bathing.

A spa bath typically incorporates an intake and a number of spa jets positioned in the bath side walls, and piping around the exterior of the bath, through which water is circulated from an intake to the jets in the side walls of the bath by one or more pumps.

15 A spa bath provides the bather(s) with a more luxuriant bathing experience.

SUMMARY OF THE INVENTION

20 It is an object of the invention to provide an improved or at least alternative form of bath, which further adds to the bathing experience.

In broad terms in one aspect the invention comprises a bath including a water outlet or outlets arranged to in use direct a flow of water onto the upper body of a person or persons sitting in the bath and leaning back against a wall or walls of the bath.

25

In broad terms in another aspect the invention comprises a bath including an end wall section which is approximately convexly curved over at least a part of the height of the wall section and which includes a water outlet on one side of the wall section and another water outlet on another side of the wall section, both of which water outlets are arranged to in use direct a flow of water onto the shoulders and/or neck of a person sitting in the bath leaning against the curved wall section of the bath.

30

In the bath of the invention, water outlets are provided which are positioned to direct a flow of water, typically warm bath water recirculated by a pump, onto the shoulders of a bather or bathers in the bath. It is generally envisaged that two spaced water outlets will be provided in some form, one positioned so that in use it will direct a water flow onto the left-side upper body of the bather and the other positioned so that it will direct a water flow onto the right-side upper body of the bather. However in an alternative form a single water outlet may for example be arranged to direct a wide flow of water across the neck and shoulders region of a bather, from behind. Instead of being recirculated warm bath water, the water flow may be fresh ie non-recirculated water, which is preferably warmed by a water heater.

A standard (single person) bath may include upper body water outlets at one end of the bath only. A bath designed to accommodate two persons sitting in the bath against opposite ends of the bath may incorporate upper body water outlets at both ends of the bath. A bath designed to accommodate two persons sitting side by side may incorporate side by side upper body water outlets arranged to direct water onto the upper body of both bathers. A spa bath or pool designed to accommodate up to three or more persons may incorporate upper body water outlets in accordance with the invention at a number of seating positions around the bath or pool. In this specification the term "bath" is intended to also include spa baths and spa pools, including and also known as spas, whirlpools, and jacuzzis.

Typically the upper body water outlets will be positioned in a junction portion of the bath which joins a wall section of the bath which defines the bath cavity, with a surrounding rim section around the bath cavity. Where two spaced upper body water outlets are provided to direct water flows on to the left and right-sides of a bather or bathers, typically the junction portion between the bath wall section and surrounding rim section will be between the upper body water outlets be a smooth joining portion shaped so that it is comfortable for the neck or head of a bather to rest against. Alternatively or additionally the bath may incorporate a pillow formed of a compressible material such as synthetic foam which is positioned between the upper body water outlets to give added comfort to a bather. In a further form of the invention

the upper body water outlets may be integral with such a pillow as will be further described. In another form of the invention the upper body water outlets may be positioned on the generally horizontal rim section around the bath cavity or in recesses in such a rim section. The outlets maybe arranged to direct an arching and preferably
5 laminar flow of water onto the upper body or bodies of a bather or bathers.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is further illustrated by the following description of embodiments of
10 baths of the invention, which are described by way of example and without intending to be limiting. In the drawings:

Figure 1 is a view from above showing one form bath of the invention, with a user therein,
15

Figure 2 is a view from above one end of the bath of Figure 1 when empty,

Figures 3A and 3B are close up views of the upper body water outlets of the bath of Figure 1 positioned on either side of a neck pillow,
20

Figure 4 is a view from above of one of the pivotable upper body water outlets of the bath of Figures 1 to 3,

Figure 5 is a view of the upper body water outlet of Figure 4 from one end,
25

Figure 6 is a cross-section view of the upper body water outlet of Figure 4 along line A-A of Figure 3,

Figure 7 shows another form of bath of the invention in which upper body water outlets
30 are integral with a neck-pillow,

Figure 8 shows a bath of the invention with upper body water outlets mounted in a surrounding rim section of the bath,

5 Figure 9 shows a bath in which a single fitting around a curved end wall of a bath provides upper body water outlets which direct a wide flow of water onto the shoulders and neck of a bather, and

10 Figure 10 shows a bath of the invention similar to that of Figure 9 in which a single fitting around a curved end wall of a bath provides upper body water outlets and also supports a neck pillow

DETAILED DESCRIPTION OF PREFERRED FORMS

15 Referring to Figures 1 to 3, the bath shown therein is a spa bath and incorporates a suction inlet from which water is drawn and a number of spa outlets or jets from which water is pumped back into the bath. The bath has one or more wall sections 1 which are shaped so as to be comfortable for bathers sitting in the bath and leaning back against the wall of the bath. The bath may include water outlets 2 in the curved wall sections 1 as shown in Figure 2 which direct water against the back of the bather.

20 At the top of wall sections 1 is optionally provided a pillow 3 which is moulded from a synthetic foam material, and on either side of the pillow are mounted left and right upper body water fittings 4 including outlets 5, which are also connected to the spa pump or pumps so that they will in use direct a flow of water onto the upper body of a
25 bather sitting in the bath, on both the left and right sides as shown in Figure 1. Preferably the fittings 4 provide water outlets 5 which are elongate in shape as shown so that the flow of water from each outlet 5 is wider than it is deep, or laminar, so that when the water flows impact the shoulder and/or neck regions of a bather they will cover and warm as much of the bathers upper body exposed above the water in the bath,
30 as possible. Alternatively however the outlets 5 may comprise a number of smaller elongate or circular outlets for example.

In the bath shown in Figures 1 to 3 the upper body water fittings 4 can pivot in the direction of arrows P and/or Q (if both, then through an approximate quadrant arc) as shown in Figures 3A and 3B, which enables a bather sitting in the bath to perfect the aim of the water flow onto the bathers upper body.

5

Figures 4 to 6 show a single fitting 4. The fitting which has a hollow interior also has a hollow mounting neck 6 which is in turn carried in a tubular collar 7 fixed in an aperture in the bath wall, so that a user can pivot the fitting 4 by pushing or pulling the top of the fitting, causing the fitting to rotate in the tubular collar 7. A pipe (not shown) from the water pump of the bath or alternatively a separate pump, connects to the lower end 8 of the tubular collar 7 and O-rings at 9 and 10 seal between the mounting neck 6 and the tubular collar 7.

In an alternative form upper body water outlet fittings similar to those shown in Figures 1-6 may be fixed rather than having the ability to be pivoted by a bather as described. Such fixed fittings may be formed separately from the bath wall or alternatively may be formed as integral shaped moulded portions of the bath wall and/or rim section around the top of the bath wall.

Figure 7 shows another form of bath of the invention in which neck-shoulder water outlets 5 are integral with a neck-pillow 3. The neck pillow may be of any desired shape. Apertures through a removable moulded foam pillow may align with water outlets through the wall or horizontal rim of the bath. Optionally the neck pillow including the water outlet apertures 5 may be covered with an open weave material such as a LYCRA™ material which will at least partially conceal the water outlets 5 without significantly interrupting the water flow in use. In another form pivotable neck-shoulder water outlets 5 as in the bath of Figures 1 to 3 may comprise flexible wings or ears of a pillow by being over-moulded with moulded foam material from which the pillow 3 is formed. Alternatively the pivotable neck-shoulder water outlets 5 as in Figures 1 to 3 may be non-integral with the pillow 3 ie separate components, but still be over-moulded or covered with a softer synthetic material

Figure 8 shows a bath of the invention with neck-shoulder water outlets 5 mounted in an upper rim section of the bath. The outlets 5 are again positioned so that they will in use direct a flow of water on to the upper body of person sitting in a bath leaning against the curved wall section 1 of the bath.

5

Figure 9 shows a bath of the invention in which a single tubular fitting 7 around curved end wall 1 of the bath provides neck-water outlets 5 as shown. The tubular fitting may be a chromed fitting for example. It may be mounted to the upper rim section of the bath by short upright tubes 8 through which water is supplied to the interior of the tube 7. The outlets 5 in the tube 7 may comprise a series of slot outlets around approximately the full length of the tube 7, or slot outlets on either side only, or the outlets may be formed as a series of non-slot shaped apertures.

10

Figure 10 shows a bath similar to that of Figure 9 in which a similar curved fitting around the upper rim section of the bath also supports a moulded foam pillow 3, and provides neck-shoulder water outlets 5 which direct a laminar flow of water onto the shoulder regions and also neck of a bather.

15

The foregoing describes the invention including a preferred forms thereof. Alterations and modifications as will be obvious to those skilled in the art are intended to be incorporated in the scope hereof.

20

CLAIMS:

1. A bath including a water outlet or outlets arranged to in use direct a flow of water from behind onto the upper body of a bather or bathers sitting in the bath and
5 leaning back against the wall of the bath.
2. A bath according to claim 1 including a pump and water recirculation system arranged to recirculate a flow of water from the bath through said upper body water outlets onto the shoulders of a bather or bathers in the bath.
- 10 3. A bath according to either of claims 1 and 2 wherein said upper body water outlet(s) comprise two spaced water outlets one positioned to direct a water flow onto the left-side upper body of a bather and the other positioned to direct a water flow at the same temperature onto the right-side upper body of the bather.
- 15 4. A bath according to any one of claims 1 to 3 wherein the upper body water outlets are elongate in shape to deliver a flow of water from each outlet which is wider than it is deep.
- 20 5. A bath including an end wall section which is approximately convexly curved over at least a part of the height of the wall section and which includes an upper body water outlet or outlets arranged to direct a flow of water from behind onto the shoulders and/or neck of a bather sitting in the bath leaning against the curved wall section of the bath.
- 25 6. A bath according to claim 6 including a pump and water recirculation system arranged to recirculate a flow of water from the bath through said upper body water outlets onto the shoulders of a bather or bathers in the bath.
- 30 7. A bath according to either of claims 5 and 6 wherein said upper body water outlet(s) comprise two spaced upper body water outlets one positioned to direct a water

flow onto the left-side of a bather and the other positioned to direct a water flow at the same temperature onto the right-side upper body of the bather.

8. A bath according to claim 7 wherein said left and right side upper body water outlet fittings are provided on either side of a central pillow for a bather.

9. A bath according to either one of claims 5 and 6 comprising a single said upper body water outlet arranged to direct a wide flow of water across the neck and shoulders region of a bather.

10

10. A bath according to any one of claims 5 to 9 including left and right side upper body water outlet fittings which are pivotally mounted enabling a bather sitting in the bath to adjust the direction of the water flow from the fittings onto the bathers upper body.

15

11. A bath according to claim 10 wherein each fitting has a hollow interior and a hollow mounting neck by which the fitting is pivotally mounted is in turn carried in an aperture in the bath wall or a rim around the top of the bath wall.

12. A bath according to any one of claims 5 to 7 wherein the upper body water outlet fittings are formed as integral shaped moulded portions of the bath wall and/or rim section around the top of the bath wall.

13. A bath according to any one of claims 5 to 7 wherein the upper body water outlet fittings are integral with a pillow associated with the bath wall and/or a rim section around the top of the bath wall.

14. A bath according to claim 13 wherein the upper body water outlet comprise flexible side portions of said pillow.

30

15. A bath according to either one of claims 5 and 6 wherein the upper body water outlet(s) are provided in a single hollow fitting extending along an upper portion of the bath wall or along a rim section at the top of the bath wall.

5 16. A bath according to claim 15 wherein said single hollow fitting also supports a pillow.

17. A bath according to any one of claims 5 to 16 which also includes a suction inlet from which water is drawn and a number of spa outlets or jets in the walls of the bath
10 through which water is recirculated back into the bath.

18. A bath according to claim 17 wherein one or more of said spa outlets or jets are provided in said convexly curved wall section of the bath to direct water against the back of the bather.

15

19. A bath according to any one of claims 5 to 18 wherein the upper body water outlets are elongate in shape for delivering a flow of water from each outlet which is wider than it is deep.

20

1/6

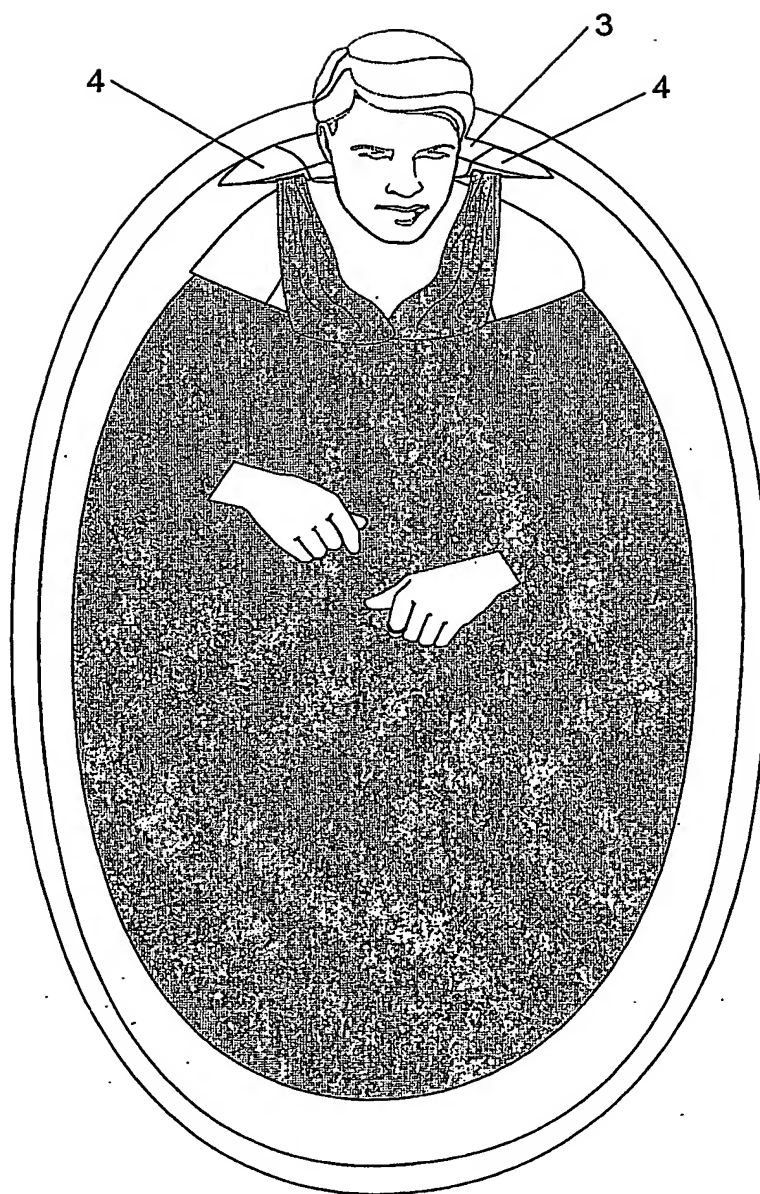


FIGURE 1

2/6

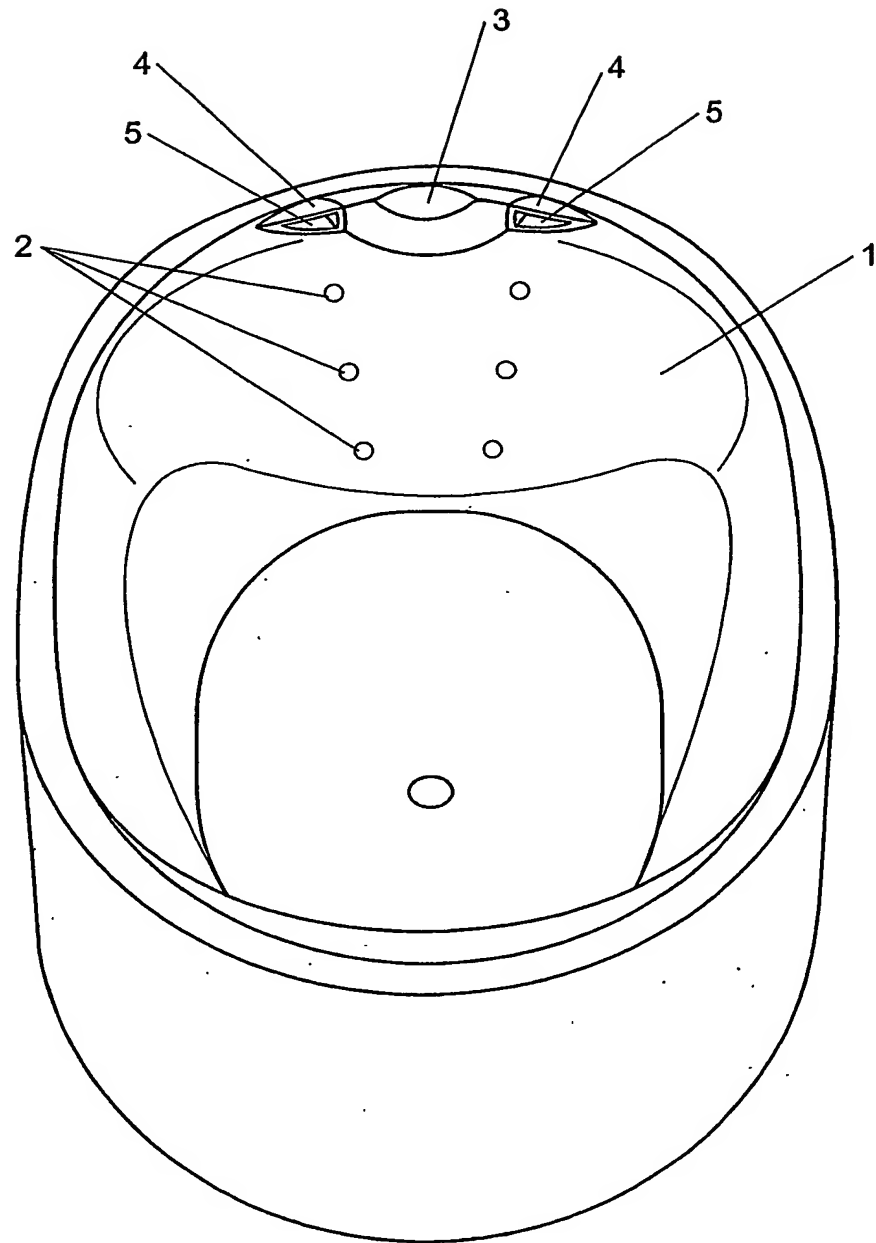
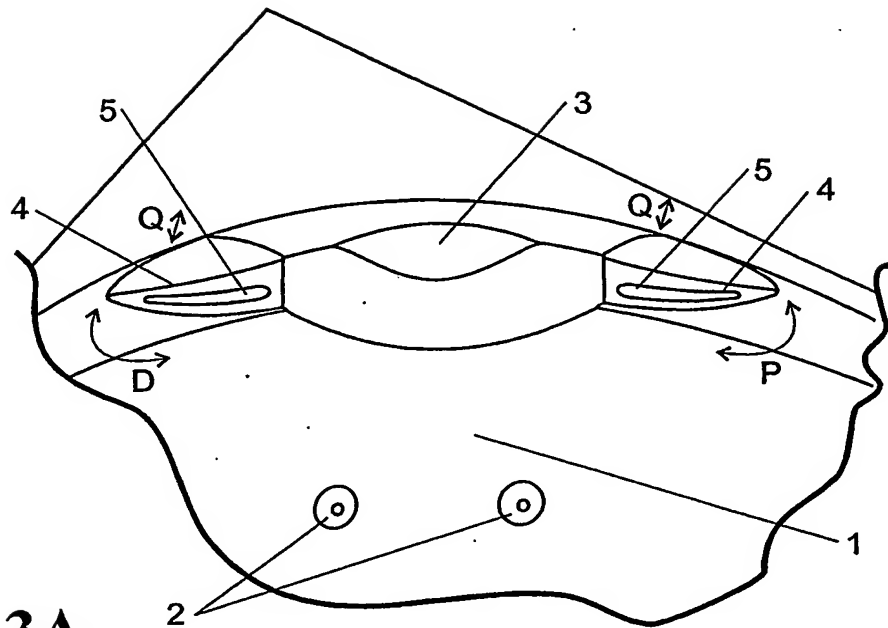
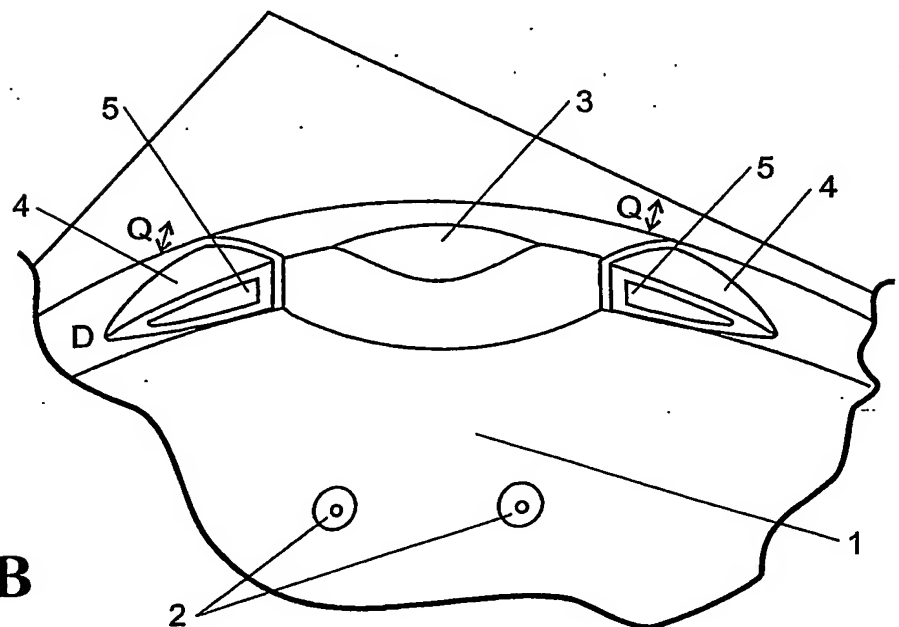


FIGURE 2

3/6

**FIGURE 3A****FIGURE 3B**

4/6

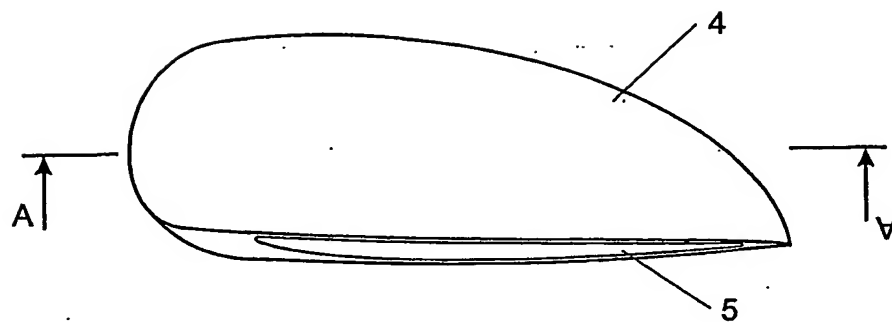


FIGURE 4

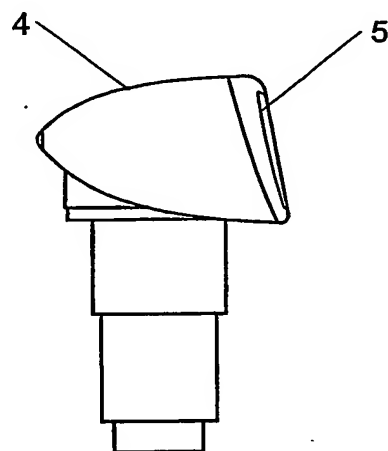


FIGURE 5

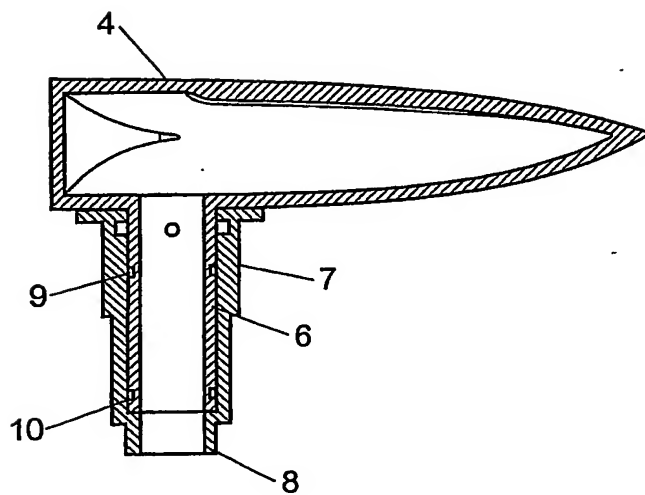


FIGURE 6

5/6

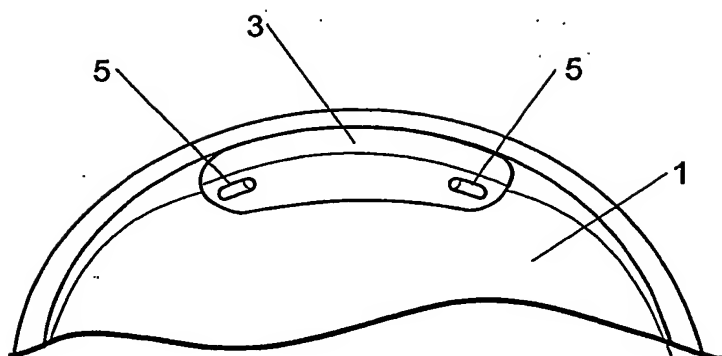


FIGURE 7

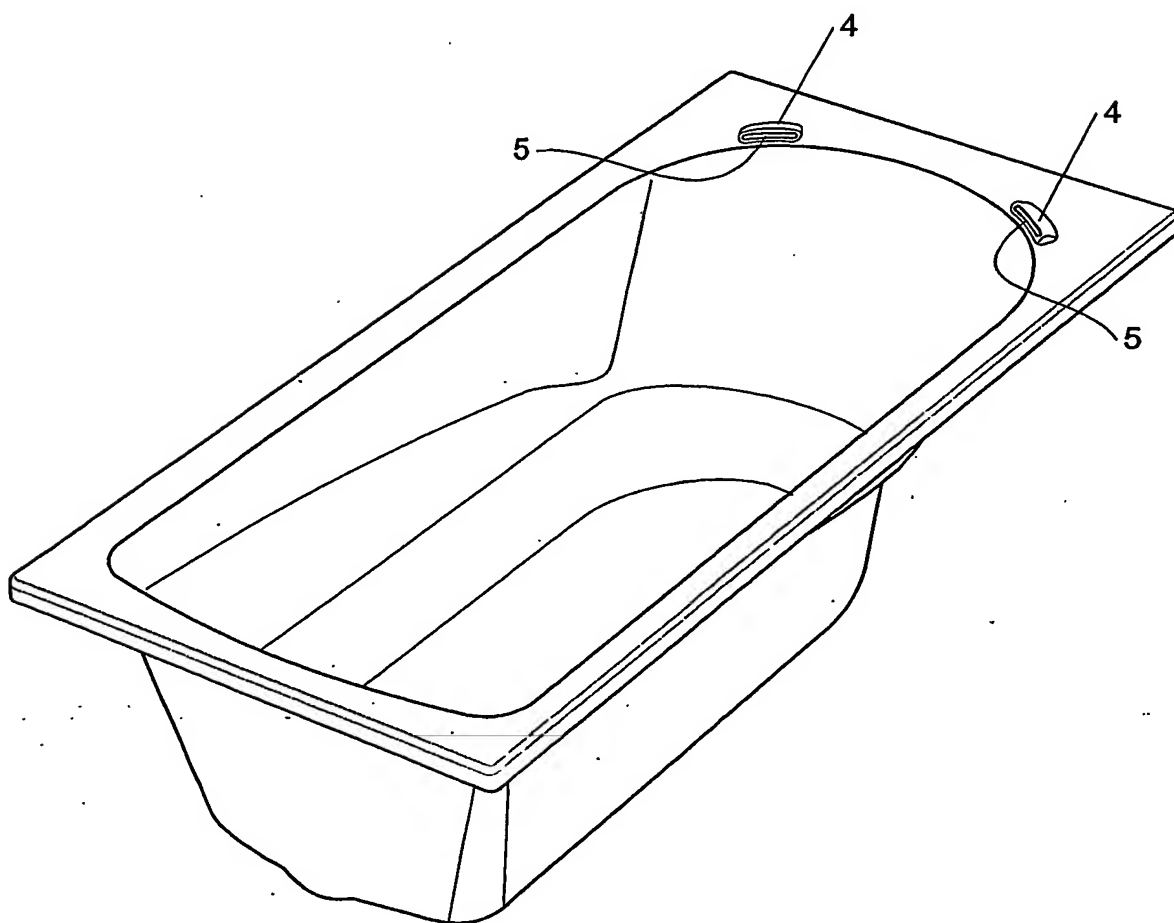
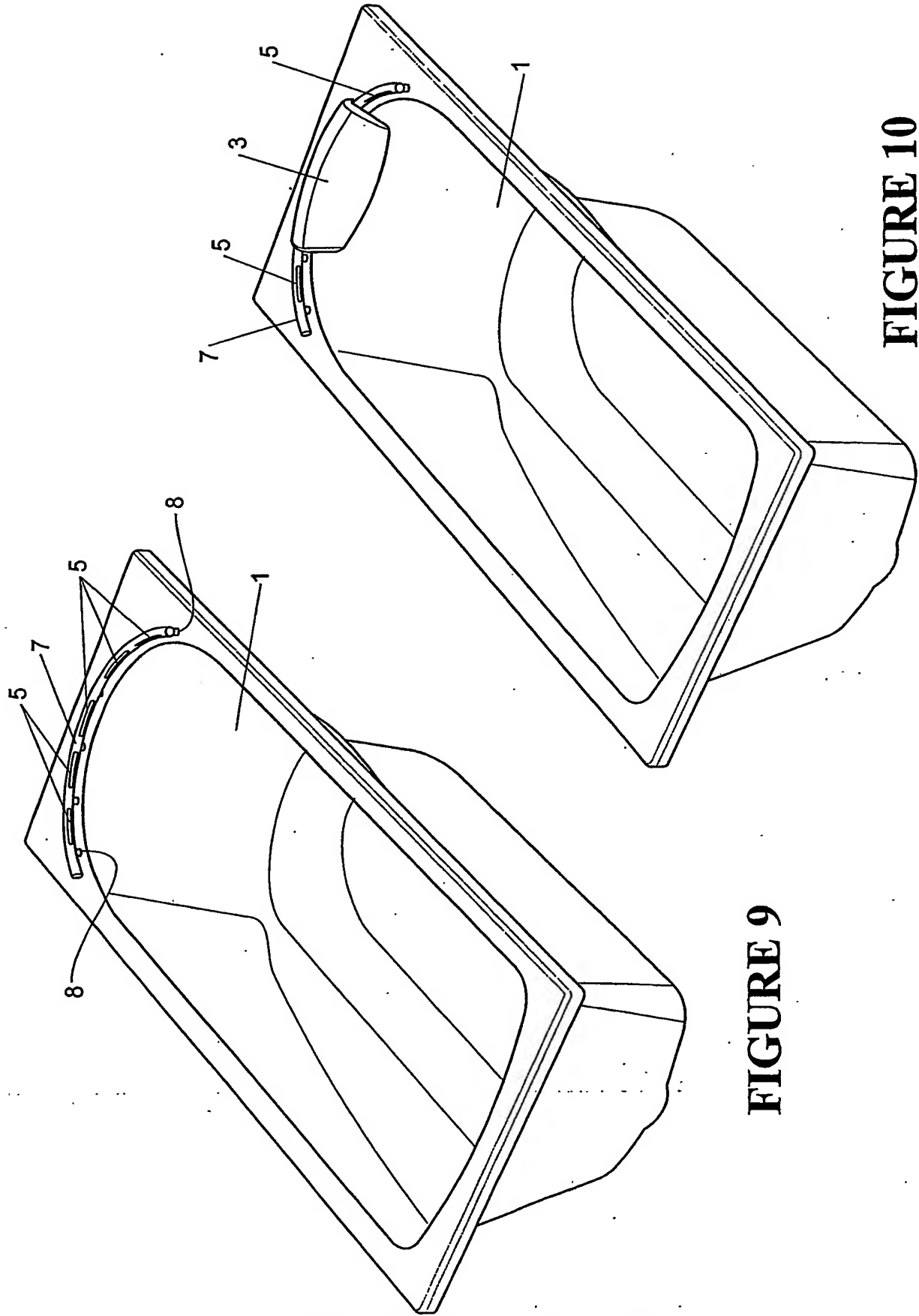


FIGURE 8

6/6



INTERNATIONAL SEARCH REPORT

 International application No.
PCT/NZ2003/000282
A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. 7: A47K 3/02, 3/022, 3/12 A61H 33/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPAT, IC/ A47K-003, A61H 033 key words OUTLET+, NOZZLE+, JET+, SPA+, SHOULDER+, NECK+, UPPER+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6256805 B (LUDLOW et al.) 10 July 2001 Fig 1	1,3
P,X	US 20030000009 A (BRENNAN et al.) 2 January 2003 Page 3 para 0047 to page 4 para 0052 and figs 1&2	1-3
A	US 20020053105 A (TURNER) 9 May 2002 Whole document	1-19

- ☐ Further documents are listed in the continuation of Box C☒ See patent family annex

- * Special categories of cited documents:
- | | |
|---|--|
| "A" document defining the general state of the art which is not considered to be of particular relevance | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "E" earlier application or patent but published on or after the international filing date | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "O" document referring to an oral disclosure, use, exhibition or other means | "&" document member of the same patent family |
| "P" document published prior to the international filing date but later than the priority date claimed | |

 Date of the actual completion of the international search
9 March 2004

 Date of mailing of the international search report
16 MAR 2004

Name and mailing address of the ISA/AU

 AUSTRALIAN PATENT OFFICE
 PO BOX 200, WODEN ACT 2606, AUSTRALIA
 E-mail address: pct@ipaaustralia.gov.au
 Facsimile No. (02) 6285 3929

Authorized officer

SARAVANAMUTHU PONNAMPALAM
 Telephone No : (02) 6283 2070

INTERNATIONAL SEARCH REPORT

International application No.

Information on patent family members

PCT/NZ2003/000282

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member		
US	6256805	AU 36643/97	CA	2260237	EP 0921782
		NZ 334093	US	5754989	US 5987663
		US 6000073	US	6092246	WO 9801098
US	2003000009	NONE			
US	2002053105	NONE			
END OF ANNEX					

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.